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AUTHOR Coleman, Geraldine J.
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ABSTRACT

This is the third in a series of six monographs developed to help local educators use and report Michigan Educational Assessment Program (MEAP) test results. These results provide reliable, objective information on the status of basic skills education useful in reviewing and revising the curriculum and instructional program. This review requires preplanning, leadership by the school principal, a MEAP School Utilization Team (which should include teachers from each grade level and/or curriculum area and from each support service), and cooperative involvement of the total instructional staff. There are six major steps in the MEAP process to conduct a curriculum and program review: (1) determine staff expectations by using the objective matrices for reading and mathematics for grades 4, 7, and 10 (Appendix B); (2) examine student performance using student test booklets and MEAP reports; (3) set realistic criterion levels for objectives with low attainment rates and select skill areas for intensive review; (4) examine the current instructional program to determine where MEAP skills are taught; (5) identify weaknesses in the curriculum, instructional program, and/or textual materials and set realistic short and long range goals; and (6) develop a plan of action involving the total instructional staff. Appendices contain five resource materials. (BS)

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STEPS IN THE RIGHT DIRECTION!

USING AND REPORTING TEST RESULTS

MONOGRAPH #3

IDENTIFYING AND ADDRESSING CURRICULUM NEEDS

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MONOGRAPH #3

IDENTIFYING AND ADDRESSING CURRICULUM NEEDS

Written By:
Geraldine J. Coleman

Edited By:
Edward D. Roeber and Robert A. Carr

USING AND REPORTING TEST RESULTS IS A SERIES OF SIX MONOGRAPHS, DEVELOPED AND PRODUCED BY MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM STAFF TO HELP LOCAL EDUCATORS USE AND REPORT TEST RESULTS.

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INTRODUCTION

This monograph is the third in a series of six. The series was prepared by the staff of the Michigan Educational Assessment Program (MEAP) to help local educators use and report MEAP tests results. The first monograph gives an overview of how to use and report MEAP tests results. The second monograph deals with identifying and addressing individual student needs. Monographs four through six cover reporting MEAP test results to parents, the school board, and the public through the news media.

The purpose of this monograph is to discuss how MEAP tests results can be used to review the school curriculum and instructional program. The discussion will cover three basic areas: why MEAP tests results should be used, what should be done and who should do it, and how to conduct a curriculum and program review using MEAP tests results and resource materials.

The ideas, suggestions and procedures discussed in the series can be generalized and adapted for use with a variety of assessment instruments. Use of any one monograph will help to accomplish the specified task. However, use of the complete series will help in the development of a well-rounded, effective procedure for using and reporting MEAP tests results. Once the procedures have been implemented, and refined, they can be used on a continuous basis.

WHY SHOULD MEAP TESTS RESULTS BE USED?

The Michigan Educational Assessment Program (MEAP) is funded by state tax dollars, and the administration of MEAP tests is mandated by

the state legislature. MEAP tests results, specifically tailored to meet the needs of local educators are produced and sent to local districts automatically. However, use of the test results is voluntary. In these days of shrinking financial resources, reduced staff, declining enrollments, and increasing public pressure for quality public education, can you afford not to use reliable, objective information on the status of basic skills education in your school?

MEAP provides the only statewide standard for assessing student basic skill attainment. Annually, schools are provided with information on the performance of their students in the areas of reading and mathematics. This information can be used to help detect trends and patterns in the performance of students. MEAP tests results, along with other student performance indicators can be used to identify and examine possible causes for skill mastery deficits in the curriculum and the instructional program. Changes that are implemented as a result of a curriculum and program review can improve the educational quality of your school and raise the skill attainment levels of all students, both individually and collectively.

If skills have not been identified and communicated, they may or may not have been included in the instructional program. The minimum performance objectives, which are measured by MEAP tests have been identified as critical to individual success not only in school, but throughout life. The objectives were agreed upon statewide by educators, parents, students, and other citizens. The objectives, the tests which measure them, and the tests results have been and continue to be communicated to the schools. Comparing your school's curriculum and instructional program with your students' MEAP tests results is a good way to communicate to the school staff what is expected versus what is actually being done.

Staff should be reminded, at least annually, that low scores on the assessment test should not be regarded as an indication that a school or classroom is inefficient or uninspiring to students. Low scores are an indication that there are educational needs present. However, low scores do not say what caused these needs. Test results and performance objectives should be related to the instructional materials and curriculum being used in the school the student is attending.

WHAT SHOULD BE DONE AND WHO SHOULD DO IT?

Conducting a curriculum and program review is a familiar, but complex school activity, which is done periodically in many schools. The time allocated, the people involved, and the process used, varies. There may be as many variations as there are schools. There are no hard and fast rules as to how a curriculum and program review should be conducted nor what types of assessment or evaluation tools should be used in the review. The Department is concerned, however, that MEAP tests results be put to use in an effective, efficient manner. Conducting a curriculum and program review has been identified as a major legitimate use of MEAP tests results.

Conducting an effective curriculum and program review using MEAP tests results takes considerable staff time, effort, and commitment (both collectively and individually). It requires preplanning, leadership, teamwork, and the cooperative involvement of the total instructional staff in the process. Different staff members may be involved at different points in the process; however, the staff effort must be continuous and sustained to accomplish the many tasks involved.

Preplanning

Planning for use of MEAP tests results must begin before testing takes place. Awareness sessions should be arranged to assure that each staff member is familiar with the minimum performance objectives, the purpose of MEAP, content of the tests, and expectations for the students. The MEAP Handbook is an excellent resource for this activity.

A MEAP utilization team should be organized, a task-oriented agenda prepared, and responsibilities assigned. MEAP tests results and resource materials should be explained and distributed promptly to the appropriate personnel.

An outline has been prepared entitled School Preparation For Using MEAP Tests Results. It gives tips and suggestions on: things to be considered during the planning stage, composition of a school team, things to be considered in organizing the team and materials needed for the review process (see Appendix A).

Leadership

The school principal should provide the leadership and direction in this team effort. The principal should play a major role in the pre-planning activities. The responsibilities of initiating, supervising, and monitoring the awareness session, organizing the school team, and disseminating the MEAP tests results should be assumed and implemented by the principal.

A minor role should be assumed in the actual review activities. The principal should assist the school team by participating as a member of the team in setting the criterion levels for objective attainment, in conducting follow-up activities, and in conducting decision making activities which will result in improved achievement for students.

The principal should show enthusiasm and concern for the activities and give assistance and support to the staff in their efforts to review, analyze, and enhance the school curriculum and instructional program.

Teamwork

The MEAP School Utilization Team should include at least one representative from each grade level and/or curriculum area, as well as each area of support services. In small schools, full staff participation is feasible. In large schools, grade-level teams (K-3, 4-6, 7-9) may be a better alternative.

The emphasis of the team should be on people pulling together in an agreed upon direction to determine needs. A positive approach is needed to assure that changes agreed upon are implemented with care and concern for improvement. Instructional changes can be made most easily when the school staff is involved in the change. Two-way communication is important and everyone should be aware of what everyone else is doing, in terms of what, where, and when skills are taught, what needs each perceives, and finally, how each can help the other.

Attention to specific needs identified by the MEAP tests is not the job of just the fourth, seventh, or tenth grade teachers but is a total school building staff effort. The data from the Michigan Educational Assessment Program (MEAP) can help all teachers and principals discuss and focus on the specific minimal skill needs of students. All grade level and content area teachers and the principal must become involved in order to insure a quality program, with the MEAP school team providing the direction and guidance.

As soon as the results are received, it is time for the school team to look at the School Summary. The MEAP Handbook will be helpful in reading and interpreting the materials received. It is the school team's responsibility to: examine results, draw implications, make recommendations, report to full staff, involve full staff in decision making and implementation, establish a time line, and monitor implementation and evaluation. All teachers should be aware of the results and be asked to work cooperatively with the building team.

HOW CAN MEAP TESTS RESULTS BE USED TO CONDUCT A CURRICULUM AND PROGRAM REVIEW?

A suggested process has been developed for using MEAP tests results as a tool to help conduct a school curriculum and program review. Keep in mind the process is only a suggestion and may be modified or changed to fit the situation. The process can be outlined in a few easy steps. However, effective implementation of the process is not a one-shot, short-term effort.

Six major steps have been identified in the suggested MEAP process to conduct a curriculum and program review using MEAP tests results. The tasks are:

1. Determine staff expectations
2. Examine student performance
3. Set criteria at the school level
4. Examine the current delivery system
5. Make decisions and set goals
6. Develop a plan of action

STEP 1. Determine Staff Expectations

Resources

Objective matricies which are helpful analysis tools, have been developed to help facilitate the review process. The matricies list each objective in reading and mathematics for grades four, seven, and ten. The matricies can be duplicated in the amounts needed and used in a variety of ways. They can be used as a survey instrument or analyses tool. They can be used to prioritize objectives, examine the delivery system and to reference instructional materials. See Appendix B for the Reading Matrix and examples of the Mathematics Matricies.

Activity

A survey can be conducted to determine staff expectations. Use copies of the appropriate objective matrix. For each objective have staff decide whether they believe that the objective is appropriate or not appropriate for students to know at the end of the appropriate school year (3rd, 6th, or 9th grade). Have each staff member, regardless of the grade or subject they teach, complete a survey by placing A for appropriate and N for not appropriate beside each objective. In this activity each person should record their own personal opinions regarding the appropriateness of each objective.

The individual surveys should be collected and the results tallied. An analysis of the compiled information should be made and a summary report prepared.

This activity can be done anonomusly to avoid the implication of teacher evaluation. This report can be used later in the process for comparison with other information in the decision making process.

The outcome of this activity will be the exploration and recording of teacher expectations. Knowledge of teacher's perceptions of the importance of each objective is essential. Classroom emphasis is directly related to the teacher's feelings.

STEP 2. Examine Student Performance

Resources

Student test booklets and three MEAP reports (the "School Summary", the "School Test Item Analysis", and the "Feeder School Report") are useful in accomplishing this task.

The School Summary gives an overall picture of how students performed as a group on the assessment tests. The School Test Item Analysis displays the percentage of students selecting each possible answer for each test question. The Feeder School Report shows how all of the students in the district who previously attended your school performed on the assessment tests. The MEAP Handbook tells how to read the reports and gives a detailed description of what information they provide.

Activities

The initial examination of student performance should begin with a close look at the School Summary. The particular objectives with low attainment rates for the school can be identified from

this report. The objective matricies can be used in this activity as a listing to record the low attainment rates beside the appropriate objective, while showing how the tested objectives fit into the total set of objectives.

The Proportions Report which is included on the School Summary may be used to examine the percentage of students in each indicated category of achievement in the school. The categories of achievement provide information in a readily accessible form on the level of overall student performance on the entire set of performance objectives tested. This is in contrast to the other reports provided by the Department which show student performance on an objective-by-objective basis. Because of the minimal nature of the performance objectives, it is expected that most beginning fourth, seventh, and tenth graders will be in Category 4 of each subject area. It may be of value to consider selected characteristics of the student population in the school, e.g., absence rates, length of time in the district, etc. Such characteristics may be related to the percent of students in each category of achievement within the school. A re-analysis of the proportions data for students with similar sets of characteristics may help to identify some problem areas or may help to rule out some proposed explanations for results which vary from expectations.

The School Test Item analysis is more of a diagnostic report. The objectives which have been listed because of their low attainment rates can be analyzed in detail. Using a copy of the appropriate test, the team can see the actual test item and the answer choices. Using this report, the team can see the percentage of students

selecting each possible answer for each test question. By comparing the actual test item and the item analysis report information, specific problems students have in a given area can be identified. Large percentages of students choosing the same incorrect answer may indicate: an area of instruction that has been omitted, misconceptions that have been formulated about facts or processes, or unfamiliar method/vocabulary/format of testing (as opposed to lack of student knowledge). The team should consider and record possible causes for incorrect responses.

Districts may have chosen to have their seventh or tenth grade assessment results summarized by feeder school. A feeder school is considered to be any lower grade school that "feeds" students into the school where students are being tested. This option must be selected and the proper coding performed before testing occurs. These reports are provided at no cost to the district.

The Feeder School Reports are intended for use by the elementary school(s) which fed schools into the junior high/middle school or by the junior high(s)/middle school(s) which fed students into the high school. The Feeder School Report shows how all of the students in the district who attended a particular elementary or junior high school performed on the assessment tests. They are printed on the same form as the School Summary. Appendix E provides more information on this report.

If the Feeder School Report is available, student performance can be examined and analyzed using the same procedure used to examine the school summary, but providing different information.

For example: For an elementary school, the school summary provides performance information on students currently in the 4th grade and shows strengths and weaknesses in the K-3 instructional program. A Feeder School Report provides information on the performance of students currently in 7th grade, and shows strengths and weaknesses of the 4-6 instructional program of the feeder school.

STEP 3. Set Realistic Criterion Level

Resources

The resource used in this task should be the listing of objectives with low attainment rates and the listing of possible causes developed in Step 2.

Activities

District-wide performance reflects local conditions, however, district criteria level for objective attainment rates might be too high or too low for your building. Based upon the information gathered in Steps 1 and 2, decide on a working (as opposed to ideal) criterion level for student attainment in your school. With this in mind, a working criterion level should be one that is higher than the one currently being achieved. Using the listing of objectives, and listing of possible causes, place a check beside all objectives falling below the working criterion level. The objectives should then be prioritized in order of importance. This should be a consensus decision of the team.

At this point in the review process, the building team may wish to select a smaller number of objectives for the more intensive work which follows. The recommended option is to select about 5 or

6 high-priority objectives (or 1 or 2 skill areas) each for mathematics and reading which seem to pose the greatest problems at the grade level. These objectives might be selected because they have the lowest attainment rates. Or, they might be selected because their attainment rates were the furthest below the attainment rates of the same objectives from the whole district or from the state. A second option is to work with all of the tested objectives. This still represents a relatively large number of objectives to work with at one time. If the building team is large enough and sufficient time is available, then this may be a realistic option. A third option is to work with all the state minimal performance objectives.

Conducting an intensive review of a small number of objectives, showing the greatest need may be the optimal way to start the review task. The review process can then be repeated in subsequent years until all the important skills have been included. Thus the steps in the review process described below will apply this subset of targeted objectives or skill areas selected for intensive review.

STEP 4. Examine the Current Delivery System

Resources

The resources needed in this task are copies of the current school curriculum, the school program plan, the objective matricies, and the textbooks used in the school.

Activities

To determine where the MEAP objectives are currently being taught in the instructional sequence in the building and what

instructional materials are used, the current delivery system can be examined. Students have little chance of mastering objectives which are not taught. It is often beneficial to differentiate between "taught for mastery", "taught as introductory", or "reviewed". The delivery system can be examined in a number of ways.

A survey can be conducted to determine where the MEAP objectives are currently being taught in the instructional sequence in the building. The same grade level matricies used earlier can also be used to collect information from the staff on their instructional practices.

The information about instructional practices can be requested in one of several forms for each of the targeted objectives: teachers may be asked (1) simply whether or not they teach the skill (responses would be Y for yes or N for no); (2) whether they introduce the skill, teach it for mastery, or merely review it assuming teaching for mastery has already occurred (responses could be I for introduce, M for teach for mastery, or R for review, a blank space or an NA could be used to indicate that the skill is not addressed at all); (3) whether they spend a lot of time, moderate amount of time, or a small amount of time or no time teaching the skill (responses could be 3, 2, 1, or 0 respectively for the four choices), or (4) how much time do they spend teaching the skill (responses could be in terms of class hours, or class days, etc.).

Experience suggests that the optimal choice among these four selections is the second one (I,M,R,NA). This provides more information than the first option, is more universally understood by

staff persons than the third option and takes much less time to do accurately than the fourth option.

The matricies can also be used to analyse resources. Instructional materials such as textbooks can be referenced to the target objectives.

For each survey the matricies are used to conduct, a tally, compilation and analysis should be made and a report prepared. It is particularly useful to summarize the information by grade level and then look at variations both across grades as well as within the same grade. Each report will provide another piece of useful information upon which to base decisions.

STEP 5. Make Decisions and Set Goals

Resources

In this activity all of the information gathered in Steps 1-4 should be brought to bear on the decisions regarding what, if any, changes should be made in the curriculum or instructional program.

Activities

The compiled information on teacher expectations should be compared with the identified needs. If discrepancies do not appear, it may be an indication that work needs to be done on raising teacher expectations. If the comparison shows students are not meeting teacher expectations, this may indicate that changes in the curriculum or instructional program are in order.

The information gathered from examining the tests, school summary, test item analysis, and the feeder reports can be used to compare with the information from the review of the curriculum

program and instructional materials. The analysis of this information should quickly identify weaknesses in the curriculum, instructional program, and/or textual materials. The analysis can also address the question of why students are having difficulty. Comparisons can be made between the testing and learning situations.

The examination of instructional materials may show that the text books used do not cover specific objectives. A possible solution to this problem would be to develop materials and techniques or locate other resources to teach the need skills. Since most learning, particularly in mathematics, is cumulative, the solution to some identified needs could be to increase the instructional emphasis on the teaching of enabling skills that lead to attainment of the objectives measured by the tests.

Some time should also be spent brainstorming about the kinds of things other than knowledge that affect student performance. The outcome of these activities done by the review team should be a clear understanding of what is being taught, when, where, how, and by whom. Curriculum and program gaps will be recognized and recorded, and other contributing factors will have been considered.

Working together the review team can decide which of the targeted objectives or skill areas are to be given special attention during the year. The type of work to be done can also be decided by the team. Be sure this special attention is directed in two ways, instruction in the grades where the curriculum need is identified and remediation in the grade tested for the students who have problems now.

The school team should prepare a report to be shared with the total instructional staff. The report should include interpretations and implications of the findings--staff expectations, student performance, identified problem areas, and the strengths and weaknesses of the school's delivery system.

The report should also include recommendations for realistic school goals. The goals should address two levels. Short-term remedial goals should be formulated, to address the identified needs of students tested. Long-term curriculum and instructional goals should be developed to avoid the same problems in the future with students yet to be tested.

Each school must decide for itself realistic short range and long term goals. Short term goals should address the area of greatest need, i.e., the specific objectives or skill areas with low student attainment rates. Long range goals should address improvement such as: increasing the percentage of students in category 4 and decreasing the percentage of students in categories 1 and 2. Realization of such a goal, however, is dependent on the effective implementation of the activities identified from the review process as being needed. An excellent long term goal should be to improve the curriculum and program to assure improved student performance.

STEP 6. Developing a Plan of Action

The total instructional staff should be involved in the development of the plan of action. Total involvement increases the probability of total commitment to the plan's success. It also improves the likelihood of articulation of the curriculum

among teachers which is a key element in improving student achievement. The plan should identify tasks to be accomplished, assign responsibilities, establish a timeline for implementation and establish a follow-up procedure to measure success.

Developing a plan of action can be addressed in a number of ways. For instance, the building team can be charged with the responsibilities of making the preliminary plans and presenting them to the total staff for approval and implementation. Or, grade level committees (K-3, 4-6, 7-9) can be assigned the task.

What Resources are Available for Implementing the Process?

The MEAP Curriculum Review Model (Appendix C) is an outline developed to help local educators implement the curriculum program review using MEAP tests results. The model covers the basic steps in three sessions. For each session, the goals, materials needed, and approximate time and process agenda are outlined. The first session deals with examining the results, identifying the skills of greatest concern and setting a realistic criterion level. The second session reviews the curriculum and instructional program to determine what is currently being done. The last session is a decision making, goal setting activity to improve the student attainment of the basic skills. The methods were developed in schools and are based on realistic resource constraints.

The time each task takes will vary depending upon many variables, i.e., depth of analysis, size of school, number of needs identified, previous planning experiences of staff, willingness of staff to work independently and assume responsibility.

Once the process has been implemented, however, it can be refined, and adapted for repeated use as the school's permanent planning and evaluation model.

"Using The 7th & 10th Grade MEAP Tests Results (School Level)" is another suggested model process which has been developed to provide a fast easy way to interpret MEAP test results, draw implications and make recommendations, in the secondary setting. It includes an analysis flow chart of the steps to be taken; a priority listing which categorizes objectives in terms of their importance to school goals and objectives; and outlines a process for setting the wheels in motion. (See Appendix D)

Conclusion

Remember, test results are only as good as the use of which they are put. Using MEAP test results to conduct a curriculum and program review is not an end in itself, but merely a step in the teaching/learning process. Teaching by objectives can make the process easier. Using objectives as a basis for teaching makes it easier to identify what skills should be taught when, where, how, and by whom. Schools are encouraged to use the state minimal performance objectives as a base upon which to build and expand their own school curriculum and instructional program.

For the sake of convenience, the suggestions on how to use MEAP test results to conduct a curriculum and program review, as well as the other monograph topics, have been singled out and presented separately. However, this method of subdividing a coordinated team effort was adopted to point out the different responsibilities, goals, approaches, techniques, and procedures needed to implement a good use and reporting procedure.

Effective use of MEAP results to review curriculum is only one part of a larger process to use and report MEAP results effectively. The key to the ways the test results are reported to parents, the school board, and the public is how each school staff reviews and uses the results in their building.

SCHOOL PREPARATION FOR USING MEAP TEST RESULTS

I. Things to be Considered When Planning to Use MEAP

1. The school unit is a key element in the utilization of assessment data.
2. The emphasis is on having people pull together in an agreed upon direction.
3. Instructional changes can be made most easily when the school staff is involved in the changes.
4. Soliciting full staff participation, however, is easier said than done.
5. The department has developed a model for utilization of MEAP test results which is adaptable to most situations.
6. The MEAP utilization model can be put into operation in 3 sessions which involve from 2 1/2 to 4 hours. Of course, it includes an uncalculated amount of individual effort.

II. School Team Membership

A. Size - will vary depending upon building size and/or method used to select team members.

B. Participants -
   (1) Should include at least a representative sample of.
   (2) If possible, the entire staff should be involved.

III. Things to be Considered in Organizing a MEAP Utilization School Team

1. Organizational structure of the school.
2. Contractual agreements, as to meeting times and lengths.
3. Preliminary information sessions with key support personnel (such as: administrators, department chairpersons, curriculum specialist, remedial specialist, assist. principals, etc.)
4. Who will conduct meeting(s).
5. How the team membership will be determined--a) mandatory, b) voluntary, c) other.
6. How many team members are needed? The school team should include at least a representative cross section of the staff (i.e., 1-administrator, 1-teacher, 1-curriculum specialist, etc.)
7. Staff-Faculty attitude toward testing--a) negative, b) positive, c) neutral, d) no knowledge.
8. Brief description of proposed activity at total staff-faculty meeting.
9. Team meeting date, place and time.

IV. Materials Needed

1. Copy for reference (overlays); District and State Summary and Feeder School Reports.
2. Copies for each team member: School Summary.
3. Classroom Listing Report for appropriate grade(s): 4th, 7th, & 10th.
4. MEAP Handbooks (for reference).
5. Copies of the Reading and Mathematics Matrices for each participant for each purpose anticipated.

ANALYSIS MATRIX
Reading Performance Objectives

OBJ. CODE	SKILL AREA & OBJECTIVE DESCRIPTION	GRADES TESTED 4	7	10
	VOCABULARY MEANING			
IA	Prefixes	•	•	•
IB	Suffixes	•		
IC	Multiple Meanings	•	•	•
ID	Synonyms	•	•	•
IE	Antonyms	•	•	•
IF	Context	•	•	•
	LITERAL COMPREHENSION			
IIA	Fill in Blanks (Close procedure)			
IIB	Main Idea	•	•	•
IIC	Main Idea Details	•	•	•
IID	Recall			
IIE	Sequence	•	•	•
IIF	Cause/Effect	•	•	•
IIG	Likeness/Difference	•	•	•
IIH	Sentence Meaning (punctuation)			
	INFERENTIAL COMPREHENSION			
IIIA	Main Idea	•	•	•
IIIB	Cause/Effect	•	•	•
IIIC	Probable Outcome	•	•	•
IIID	Main Idea Details	•	•	•
IIIE	Sequence	•	•	•
IIIF	Likeness/Difference	•		•
IIIG	Conclusions	•	•	•
IIIH	Analogies	•	•	•
III I	Characters	•		

OBJ. CODE	SKILL AREA & OBJECTIVE DESCRIPTION	GRADES TESTED 4	7	10
	CRITICAL READING SKILLS			
IVA	Author's Purpose	•	•	•
IVB	Fantasy/Reality			•
IVC	Author's Viewpoint		•	•
	RELATED STUDY SKILLS			
VA	Reference, Awareness	•	•	•
VB	Reference, Use	•	•	•
VC	Follow Directions			
VD	Summarizing	•	•	•
VE	Outline			
VF	Alphabetizing	•	•	
	POSITIVE RESPONSE/READING			
VIA	Read in Free Time	•	•	•
VIB	Visit Reading Places	•	•	•
VIC	Request Extra Reading	•	•	•
VID	Talk About Reading	•	•	•
VIE	Participate in Creative Activities			

APPENDIX B-2

ANALYSIS MATRIX
MATHEMATICS PERFORMANCE OBJECTIVES
K-3

Objectives tested in the 4th grade test are indicated by an asterisk (core objectives) or the letter A, B, C, or D (correlated objectives). The letter indicates in which correlate form the objective appeared.

NUMERATION

READINESS:

Classification

1. The learner will classify objects by color, shape, size, texture or other attributes (characteristics).

Performance Objectives:

1. Given a set of three to five objects, two of which are alike, the learner will pick up (indicate) two that are alike in exactly one attribute.
2. Given a set of three to five objects, all but one of which are alike, the learner will pick up (indicate) the different one.
3. Using two kinds of objects in a large set (20-40 items), the learner will sort the objects into two sets according to attributes as defined by the learner. (Not limited to size, shape, color or texture.)
4. Given a set of objects, the learner will pick up (indicate) those objects which are the *same color*.
5. Given a set of objects, the learner will pick up (indicate) those objects which are the *same shape*.
6. Given a set of objects, the learner will pick up (indicate) those objects which are the *same size*.
7. Given a set of objects of assorted colors, but having the same size and shape, the learner, when shown an object of a specific color, will pick (indicate) an object which is the *same color* from her/his set.
8. Given a set of two or more (a) circular, (b) triangular, (c) square or (d) rectangular shaped objects of the same color and size, and shown an object of one of these specific shapes, the learner will pick up (indicate) an object which is the *same shape*.
9. Given an assorted set of ten *objects* of two to five colors or two to five different shapes, the learner will arrange the objects into sets according to the various colors or shapes.
10. Given two objects, the learner will pick up (indicate) the one that is *bigger* or *smaller* as requested.
11. Given a set of ten objects varying in color and shape, the learner will pick out (indicate) objects having specific combinations of the two attributes.
12. Given an object: (a) smooth, (b) rough, (c) soft, (d) hard, the learner, choosing from her/his own set of objects, will select (indicate) an object that is of the same texture of the given one.
13. Given a set of ten objects of varying shapes and textures, the learner will pick out (indicate) objects having specific combinations of two attributes as requested.
14. Given a set formed by the learner from objects found in the classroom, the learner will tell the attribute(s) the objects have in common.

2. The learner will duplicate patterns through the use of color and/or shape.

Performance Objectives:

1. Given a pattern using two objects different in color, the learner will duplicate the pattern selecting objects from a set of similar objects.
2. Given a pattern using two objects different in shape, the learner will duplicate the pattern using objects from a set of similar objects.
3. Given a series of three to five objects arranged in a pattern by color or shape, the learner will duplicate the pattern selecting objects from a set of similar objects.
4. Given a series of three to five objects arranged in a pattern by color and shape, the learner will duplicate the pattern using her/his own set of objects while looking at the original set.

3. The learner will use position as an attribute of classification.

Performance Objectives:

1. Given an object, the learner will hold it *up* or *down* as requested.
2. Given an object, the learner will place it in the following positions — *over and under, in front of,* and *in back of* — in relation to a table or box as requested.
3. Given an object, the learner will place the object *inside* and/or *outside* a box as requested.
4. Given an object, the learner will place the object *on* and or *off* a table or shelf as requested.
5. Given two or more objects, the learner will place one object: *beside another, between two others, next to another, before another, after another* as requested.
6. Given a sheet of paper, the learner, facing the paper, will point to (indicate) the *left* or *right* side of the paper, on request.

READINESS:

Ordering

4. The learner will order objects or pictures of objects.

Performance Objectives:

1. Given three to five children of varying *heights*, the learner will choose (indicate) the *tallest* or *shortest* child.
2. Given a set of five pictures of objects of various *heights*, the learner will indicate the *tallest* or *shortest* upon request.
3. Given a set of five pictures of objects of various *heights*, the learner will arrange the pictures so that the objects are ordered from *shortest* or *tallest*.

ANALYSIS MATRIX
APPENDIX B-3

MATHEMATICS PERFORMANCE OBJECTIVES
4-6

Objectives tested in the 7th grade test are indicated by an asterisk (core objectives) or the letter A, B, C, or D (correlated objectives). The letter indicates in which correlate form the objective appeared. Objectives tested at a different grade are indicated with a footnote.

NUMERATION

COUNTING AND PLACE VALUE

18. The learner will determine place value through four places.

Performance Objectives:

* 1.	Given a four-digit number not including zeroes, the learner will give the number that is 10, 100, or 1000 more or less without using formal addition or subtraction. (Regrouping may be included.)
D 2.	Given any four-digit number, the learner will write expanded notation, first by using place value words and then by using numerals.
3.	Given any four-digit number, the learner will designate the place value of any digit or the digit for any place value position.

19. The learner will read and write numerals.

Performance Objectives:

1.	Given a four-digit numeral, the learner will read the number aloud.
* 2.	Given a number orally, the learner will write the four-digit numeral.

WHOLE NUMBER

ADDITION

25. The learner will compute using the addition algorithm.

Performance Objectives:

1.	Given column addition exercises involving three one- or two-digit addends with or without regrouping (carrying), the learner will find the sums. The learner may use aids.
2.	Given addition exercises involving a three-digit number plus a one-, two- or three-digit number with or without regrouping (carrying), the learner will write the sums, using any technique.
* 3.	Given addition exercises involving two or three addends with up to six digits, with or without regrouping, the learner will find the sums, using any technique.
4.	Given all 100 addition facts in one setting, the learner will demonstrate immediate recall of the sums.

26. The learner will estimate the sum of an addition problem.

Performance Objectives:

1.	Given addition exercises involving multiples of 10 (less than 100) and multiples of 100 (less than 1000), the learner will write the sums.
2.	Given an addition exercise involving two-digit addends, the learner will estimate the answer by rounding the addends to the closest multiple of ten.
* 3.	Given an addition exercise involving three-digit addends, the learner will estimate the answer by rounding the addends to the closest multiple of one hundred.
4.	Given an addition exercise involving two three-digit addends, the learner will: (1) estimate the sum (2) solve the problem (3) state the reasonableness of her/his answer.

27. The learner will use addition in a practical application.

Performance Objectives:

B 1.	Given an appropriate word problem read by the teacher involving the addition algorithm, the learner will solve the problem.

SUBTRACTION

32. The learner will compute using the subtraction algorithm.

Performance Objectives:

* 1.	Given a three-digit number (without zeroes), the learner will subtract a two-digit number with regrouping (borrowing).
* 2.	Given any three-digit number (including numbers with one or two zeroes), the learner will subtract a two- or three-digit number. The learner may use aids.
3.	Given all 100 subtraction facts in one sitting, the learner will demonstrate immediate recall of the differences.

33. The learner will estimate the answer to a subtraction problem.

Performance Objectives:

1.	Given subtraction exercises involving multiples of ten (less than 100) and multiples of 100 (less than 1000), the learner will write the differences.
2.	Given exercises involving two- or three-digit numbers, the learner will estimate the difference to the nearest tens.
3.	Given exercises involving two- or three-digit numbers, the learner will estimate the difference to the nearest hundreds.

34. The learner will use subtraction in a practical application.

Performance Objectives:

1.	Given an appropriate word problem read by the teacher involving the subtraction algorithm, the learner will find the difference.

ANALYSIS MATRIX
MATHEMATICS PERFORMANCE OBJECTIVES
7-9

Objectives tested in the 10th grade test are indicated by an asterisk (core objectives) or the letter A, B, C, or D (correlated objectives). The letter indicates in which correlate form the objective appeared.

WHOLE NUMBER

DIVISION

46. The learner will estimate a quotient and compute using a division algorithm.

Performance Objectives:

1. Given a division exercise with a one- or two-digit divisor and a four-digit dividend, the learner will:
   (a) write three equations:
   10 times the divisor
   100 times the divisor
   1000 times the divisor
   (b) choose the larger of these numbers (10, 100, 1000) that results in a product less than or equal to the dividend.
2. Given a division exercise with a three- or four-digit dividend and a one- or two-digit divisor, the learner will find the largest multiple of 10, 100 or 1000, which when multiplied by the divisor, will produce a product less than or equal to the dividend.
3. Given a division exercise, the learner will round the divisor and dividend to estimate the quotient. The divisor is limited to two-digits and the quotient limited to four-digits.
4. Given a division exercise with a two-, three-, or four-digit dividend and a two-digit divisor without remainders, the learners will determine the quotient.
* 5. Given a division exercise with a two-, three-, or four-digit dividend and a two-digit divisor, with or without remainders, the learner will determine the quotient.

47. The learner will use division in application situations.

Performance Objectives:

D 1. Given an appropriate problem involving division, the learner will estimate the solution.
* 2. Given an appropriate verbal problem involving division of whole numbers, the learner will solve the problem.

DECISION MAKING AND PROBLEM SOLVING

58. The learner will *choose* the *appropriate operation* or *relationship* in solving a problem.

Performance Objectives:

1. Given a problem involving two operations, the learner will select the appropriate operation. NOTE: There is a large collection of words and phrases which indicate two step problems such as: average, profit, marked down, discount, amount, batting average.

59. The learner will translate oral or printed information (words, pictures, objects or sentences) into mathematical symbols or sentences.

Performance Objectives:

1. Given an appropriate problem situation involving two operations, the learner will write an equation.

60. The learner will make up a real-life situation to fit a given mathematical sentence or model.

Performance Objectives:

1. Given a mathematical sentence involving *two operations*, the learner will *draw a picture* to represent the situation.
2. Given a mathematical sentence involving *two operations*, the learner will *tell* a story to represent the situation.
3. Given a mathematical sentence involving *two operations*, the learner will *write* a story to represent the situation.

61. The learner will select or apply strategies that may be used to solve a given problem.

Performance Objectives:

1. Given an appropriate problem situation, the learner will make an organized list or table to help solve the problem.
2. Given a problem situation and several strategies, the learner will *select* those strategies that are appropriate.

62. The learner will give a reasonable solution to a given problem.

Performance Objectives:

1. Given an appropriate problem involving two operations, the learner will select the *reasonable* solutions.
2. Given an appropriate problem involving two operations, the learner will reject an *unreasonable* solution.

DECIMALS

MEANING AND PLACE VALUE

65. The learner will round decimal fractions.

Performance Objectives:

C 1. Given a numeral with no more than three decimal places, the learner will round to the nearest whole number, tenth or hundredth as requested.

66. The learner will rename fractions.

Performance Objectives:

C 1. Given a decimal fraction, the learner will rename the decimal fraction as a common fraction.
*D 2. Given a common fraction whose decimal equivalent terminates in three (3) places or less, the learner will rename the common fraction as a decimal fraction.

A MODEL FOR CURRICULUM & PROGRAM REVIEW USING MEAP TEST RESULTS

Session I

Examining Results and Identifying Present Needs

Goals:

In terms of basic skills attainment in Reading and Math:

1. School teams will be able to read, understand and interpret MEAP test results forms.
2. School teams will be able to determine where the school stands in relation to their district and state.
3. School teams will be able to make a realistic criterion selection.
4. School teams will be able to identify school problem areas and determine present needs.

Materials: (Copies for Everyone)

School Summary Report
District Summary Report
State Summary Report

Time:

1-2 hours.

Group Size:

1. Will vary, dependent upon: staff size, method of selection.
2. Should include:
   (a) Total instructional staff (if possible).
   (b) Principal and 1 Teacher per grade (minimum).
   (c) A large Building Team could be subgrouped (K-3, 4-6, 7-9).

Process:

1. Introduce activity briefly, explaining goals of the activity. (These could be written on a chalkboard, on transparencies or on news print.)
2. Review types, format and content of report forms.
3. Compare to District Summary
4. Compare to State Summary

} for general information and to establish a frame of reference, not to establish needs in comparative terms.

5. Explain criteria for school attainment of objectives. While going through each criterion:
   a. 80% "traditional" CRT criterion. Remember minimum objectives.
   b. 75% state criterion for "low needs." Before serious work is begun on the School Summary, state and district attainment levels might be compared and briefly discussed.
   c. District Summary Report (transparency useful).
   d. State attainment levels (transparency useful).
   e. Other possibilities--95%, 90%, etc.
   f. Expectations important.

   Have participants look at their School Summaries in terms of each criterion.
6. Remind the school teams that selection of a criterion for attainment implies follow up action on those not attained at criterion level. Therefore realistic criteria to be established.
   a. One criterion may be necessary for long term action.
   b. A second criterion may be necessary for short term activities.
7. The building team should select a working criterion which leaves a number of objectives on which principal and teachers will be willing to put special attention in the short term.
8. List objectives falling at or below criterion level.
9. Group into skill areas.
10. Designate short and long term goals
11. Make arrangements for the present needs of 4th, 7th and 10th graders, as well as, the short and long term criterion levels to be summarized and copies made for the next meeting.

APPENDIX C-3

A MODEL FOR
CURRICULUM & PROGRAM REVIEW USING MEAP TEST RESULTS

Session II
Curriculum and Instructional Planning

Goals:

1. School teams will examine present school needs of 4th, 7th, and 10th graders, summarized from previous meeting.
2. Teachers will complete objective matrix to determine present status of building-wide curriculum and instructional program.
3. Building teams will identify which objectives are school-wide priority and which are individual classroom priority.

Materials: (copies for everyone)

Summary of Present Needs and School Criterion Levels

Blank matrix sheets for each participant (matrix for reproduction)

Classroom Listing Reports for 4th, 7th, and 10th grade teachers

MEAP Handbook (optional)

Time:

1-2 hours

Group Size:

Building Teams

Process:

1. Introduce activity briefly, explaining goals of the activity.
2. a. 4th, 7th, and 10th grade teachers examine Classroom Listing Report to find priority objectives.

   b. All other teachers complete objective matrix. Matrix multiple uses: 1)Hours per year taught 2)Prioritize 1-5 3)Introduce/teach/review 4)Reference text book, etc. There should be a correlation between time spent and attainment. Collect and make composite of results, examples: record all times and average each grade, make a composite for each grade, etc. Be sure to differenciate between teach/learn.
3. Chairperson collects objective matrices and assigns responsibility of completion and reproducing for next meeting.
4. Determine whether or not 4th, 7th, and 10th grade classroom priorities are the same as the school priorities.
5. If necessary, building team examines MEAP Handbook to determine whether or not students have appropriate skills to attain the objectives as measured by the specific items.
6. A decision must be made as to the allocation of special attention to be given to objectives in the school and in the classroom.
7. The building team may want to distribute the objectives across grade levels.

8. Team assignment: In preparation for the next meeting, principal and teachers will collect resource information on priority objectives, e.g. what textbook materials, supplementary materials, games, etc. are available for focused attention. Anything new, unique, or different on any priority objective.

9. The individual matrices must be collected, compiled into a composite, and copies of the composite picture made for each team member for the next meeting. This task should be definitely assigned. Separate composits for grades K-3, 4-6, or 7-9 may be helpful in schools with large grade spans.

A MODEL FOR
CURRICULUM & PROGRAM REVIEW USING MEAP TEST RESULTS

Session III
Decision Making - Setting Goals

Goals:

1. Building team will examine objective matrix composite to determine teaching priority devoted to various objectives.
2. Building team will make decision to change (or not change) school curriculum or instruction program.
3. Building team will form a plan of action for work on school and classroom objective priorities--short term and long term.
4. Building team will share findings about instructional sources and methods.
5. Building team will determine the need for "outside" assistance.

Materials:

Composite objectives matrix(s) (copies for everyone)

School Summary Reports (from Session I)

Time:

1 hour

Group Size:

Building team

Process:

1. Introduce activity briefly, explain goals.
2. Hand out the objective matrix(s), and note objectives which have high priority and low priority, in terms of amount of instructional time allocated, etc.
3. Have building team examine objectives previously selected as short term and long term priorities.
4. Building team should determine whether or not a change should be made in the instructional priorities, based on assessment results.
5. Building team should decide which objectives will be given special attention immediately with short term remediation goals.
6. Building team should decide which objectives will be given special attention as long term curriculum changes and instructional program changes.
7. Building team should share information about materials and sources. Are all priority objectives covered? (List where and how.) Are more resources needed?
8. School teams should know whether or not they need "outside" assistance and what changes in curriculum materials and so forth are needed.
9. Develop a plan to "evaluate" effectiveness of planned changes.
10. A timeline should be developed.
11. Follow-up reporting, as needed, should also be put on a timeline.

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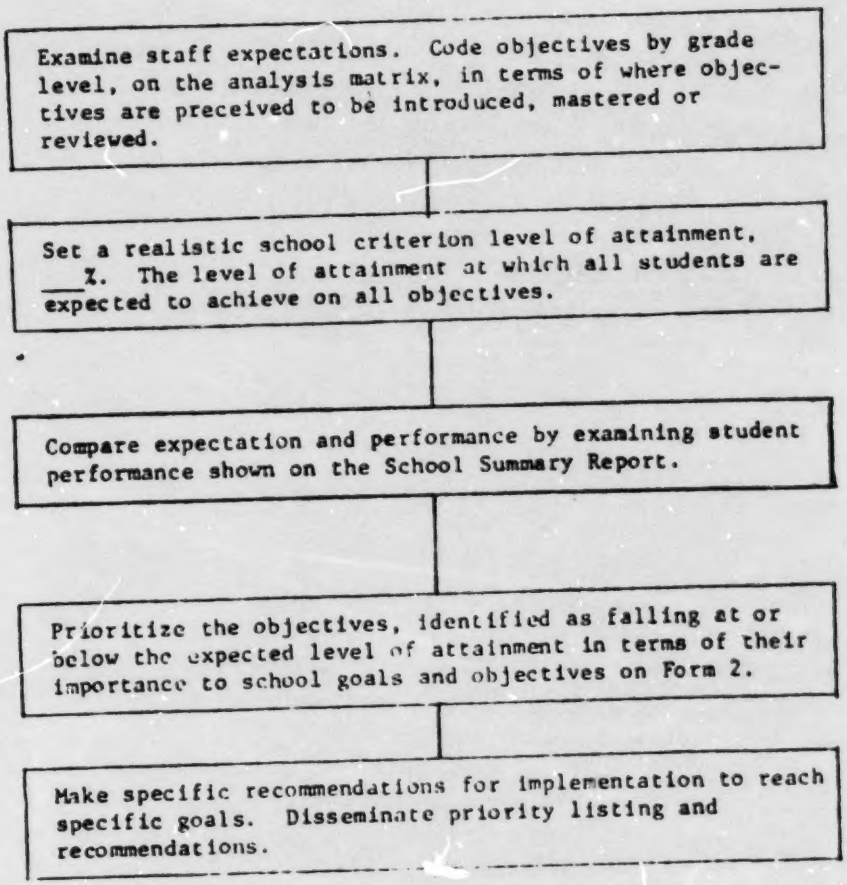
USING THE 7TH & 10TH GRADE MEAP TESTS RESULTS
(School Level)

•••

The following is a suggested process which will provide a fast and easy way for the MEAP Building Team to interpret MEAP test results, draw initial implications, and make recommendations by comparing staff expectations and student performance.

ANALYSIS FLOW CHART


Examine staff expectations. Code objectives by grade level, on the analysis matrix, in terms of where objectives are preceived to be introduced, mastered or reviewed.
Set a realistic school criterion level of attainment, ___%. The level of attainment at which all students are expected to achieve on all objectives.
Compare expectation and performance by examining student performance shown on the School Summary Report.
Prioritize the objectives, identified as falling at or below the expected level of attainment in terms of their importance to school goals and objectives on Form 2.
Make specific recommendations for implementation to reach specific goals. Disseminate priority listing and recommendations.

FORM 2

APPENDIX D-2

SCHOOL PRIORITY LISTING

Steps for Completing Format:

1. Place objectives in the three categories (Critical, Important, Useful) based upon their importance to school goals and objectives.
2. Within each category, prioritize the listed objectives.

	Objectives
Critical	
Important	
Useful	

APPENDIX D-3

SUGGESTIONS FOR THE INITIAL RECOMMENDATIONS OF THE BUILDING TEAM

I. Format

These recommendations are based upon a comparison of staff expectations and student performance on the assessment tests.

Activity Coordinator: _____

OBJECTIVE CODE/DESCRIPTION	ACTIVITY PLAN
	Meeting Schedule: _____ Participants: _____ Activity: _____ Expected Outcome: _____

II. Meeting Schedule

1. Length and number of meetings will vary depending upon assigned task.
2. Schedule a one hour organizational meeting (time, place, agenda).
3. Subsequent meetings: discretion of participants.

III. Participants

1. Number and configuration will vary depending upon:
   a. staff size
   b. organizational structure of the school
   c. number and type of objectives identified, etc.
2. Full staff involvement is recommended. (The total staff need not be involved in all activities, but each staff member should participate in some aspect of the utilization process.)
   a. grade level grouping
   b. department grouping
   c. interest grouping, etc.

IV. Activities

1. Further data analysis using the School Test Item Analysis Report and/or other available data.
2. Integrating the objectives into the instructional program by content area.
3. Focus instructional program on the teaching of enabling skills that lend to attainment of objectives measured by the tests.
4. Develop or obtain materials and techniques to teach the skills that are not attained.
5. Determine how objectives can be better taught in the future.

V. Expected Outcome

1. Curriculum review and revision
2. Instructional program changes
3. Selecting appropriate activities and materials
4. Time line and evaluation plan

APPENDIX E-1

FEEDER SCHOOL REPORTS

I. Definition and Purposes

School districts may choose to have their 7th or 10th grade assessment results summarized by feeder school. A feeder school is considered to be any lower grade school that "feeds" students into the school where students are being tested. This option must be selected and the proper coding performed before testing occurs.

The Feeder School Report is a summary of students grouped according to the 4th or 7th grade school they attended. All Feeder School Reports are returned by the Scoring Service to the DISTRICT office. They are provided at no cost to the district. The reports are to be used by the district and the feeder schools.

The Feeder School Reports are not intended for use by the schools in which the students are currently receiving instruction. These schools, instead, should use their School Summary Report which is the composite of all students tested, regardless of the feeder school attended. The Feeder School Reports are printed on the same form as the District and School Summary Reports.

II. Usage Suggestions

A. District Level

1. The district has access to all Feeder School Reports.

2. The district can use the Feeder School Reports to compare the effects of different types of input, used in different schools, upon student attainment in the basic skills.

   a. Basic Textbooks

   b. Teaching Styles

      (1) Open Classroom vs. Self-Contained

      (2) Classroom Teacher vs. Subject Area Specialist

      (3) Ungraded vs. Traditional

   c. Support Materials

   d. Curriculum

   e. Instructional Programs

      (1) Traditional Math vs. New Math

      (2) Phonics Approach vs. Word Recognition Approach

B. Feeder School Level

1. The Feeder School Reports give the feeder school information on how well the 4-6th or 7-9th grade curriculum and instructional programs are meeting the basic skills needs of their students.

2. The Feeder School Report provides information to assist in the decision making process.

   a. What strengths/weaknesses can be identified?

   b. Should something be changed?

      (1) Emphasis

      (2) Curriculum

      (3) Instructional Program

      (4) Textbook

      (5) Teaching Methods and/or Techniques

      (6) Priorities

III. Cautions

1. Feeder School Reports should not be used for teacher evaluation since the results reflect an accumulation of skills attained over several years with different teachers.

2. Do not compare 7th grade results with 4th grade Feeder School Results, nor 10th grade results with 7th grade Feeder School Results.

3. Rationale

   a. Current grade level reports and Feeder School Reports are based upon different tests and different student populations.

   b. The test results of different grades cannot be equated. Although each test may measure the same concept, each grade level measures different objectives and different skills.

USING AND REPORTING TEST RESULTS

MONOGRAPH SERIES

Number	Title
1	An Overview
2	Identifying And Addressing Student Needs
3	Identifying And Addressing Curriculum Needs
4	Reporting Test Results To Parents
5	Reporting Test Results To The School Board
6	Reporting Test Results To The Public

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